

# SIEMENS

PATENT  
Attorney Docket No. 2002P15759WOUS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Inventor:	M. Appel, et al.	) Group Art Unit:	2612
		)	
Serial No.:	10/528,731	) Examiner:	Labbees, Edny
		)	
Filed:	03/22/2005	) Confirmation Number:	8587

Title: METHOD AND APPARATUS FOR MONITORING A TECHNICAL  
INSTALLATION, ESPECIALLY FOR CARRYING OUT DIAGNOSIS

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COMMISSIONER FOR PATENTS

APPELLANTS' SECOND APPEAL BRIEF UNDER 37 CFR 41.37

Sir:

This brief is in furtherance of the Notice of Appeal filed in this application on 1 July 2010.

1. REAL PARTY IN INTEREST - 37 CFR 41.37(c)(1)(i)

The real party in interest in this Appeal is the assignee of the present application, Siemens Aktiengesellschaft.

2. RELATED APPEALS AND INTERFERENCES - 37 CFR 41.37(c)(1)(ii)

There is no other appeal, interference or judicial proceeding that is related to or that will directly affect, or that will be directly affected by, or that will have a bearing on the Board's decision in this Appeal.

3. STATUS OF CLAIMS - 37 CFR 41.37(c)(1)(iii)

Claims cancelled: 1 – 11.

Claims withdrawn but not cancelled: None.

Claims pending: 12 - 22.

Claims allowed: none.

Claims rejected: 12 - 22.

The claims on appeal are 12 - 22.

4. STATUS OF AMENDMENTS - 37 CFR 41.37(c)(1)(iv)

No amendment has been proposed to the claims since the mailing of the final office action on 27 January 2010. A response without amendment was filed on 13 April 2010 under 37 CFR 1.116, but the rejections were sustained per the Advisory Action mailed 08 June 2010.

5. SUMMARY OF THE CLAIMED SUBJECT MATTER- 37 CFR 41.37(c)(1)(v)

With reference by page and line number to the detailed description, and with reference to the figures, the following summary describes one or more exemplary embodiments disclosed in the Specification and which are covered by one or more specific claims, but it is to be understood that the claims are not so limited in scope.

The invention relates generally to a method for monitoring a technical installation, for example, to provide a diagnosis, such as might be performed in relation to operation of turbines

or generators in a power plant. See page 1, lines 10-14. According to one example, galvanic skin conditions can be used to determine the state of a maintenance worker who is observing a component such as a turbine in a plant. Even slight deviations from an operating condition of a particular component can be sensed in a worker, e.g., a change in blood pressure, pulse rate, galvanic skin reflex, breathing pattern or cardiovascular activity. At the same time, the worker may not be aware there is deviation from the operating condition or that potentially a failure may be in progress. Acquisition of human physiological changes may be based on involuntary reactions of the nervous system.

According to another embodiment, a drive belt may be monitored, initially based on an observation by a worker that a pump is making more noise than usual because one of three belts is slightly loose. If there is not an immediate need to tighten or change the belt, then the belt may be monitored on subsequent tours by the worker. The monitoring may be effected by measuring how long the worker observes the drive belt or by detecting a level of change in human perception while the belt is being observed. Generally, many embodiments of the invention add objectivity to human sensing by combining human sensing with objective recording to provide a plant assessment tool.

#### 5A. CONCISE EXPLANATION OF SUBJECT MATTER DEFINED IN INDEPENDENT CLAIM 12.

The invention defined in **independent claim 12** provides a method for monitoring a technical installation (page 1, lines 27-29). According to the method, during an inspection tour of a portion of the technical installation a physiological reaction of a human being is acquired (page 2, lines 6-16; page 3, lines 17-23; page 4, lines 18-26) using a sensor, e.g., a polygraph (page 4, lines 1 - 5). An assessment tool (e.g., also a polygraph) is used to record reaction information acquired with the sensor. (page 2, lines 18 - 20; page 4 lines 7 - 14 and lines 27 - 29). The recorded information is analyzed with the assessment tool (see, again, page 4, lines 1 - 5) to diagnose the operational condition of a component of the technical installation (see, also, page 5, lines 1-3). The reaction may be a change in human perception such as, for example, a change in the duration of time over which an observation is made. As noted above, this may be the amount of time that a worker spends observing a noisy belt.

5B. CONCISE EXPLANATION OF SUBJECT MATTER DEFINED IN INDEPENDENT CLAIM 18.

The invention of **independent claim 18** provides a method for performing a diagnosis of a technical installation (page 1, lines 34 - 36; page 4, lines 1-5). According to this method, a sensor device is provided (page 2, lines 18 - 20; page 3, lines 22 - 35). During an inspection tour around a portion of a technical installation (page 1, lines 34 - 36), an assessment tool is used to record physiological reaction information acquired with the sensor device (page 1, lines 34 - 36; page 2, lines 12 - 20; page 4 lines 7 - 14 and lines 27 - 32). page 5, lines 5-14). The recorded information is analyzed with the assessment tool (page 4, lines 1-5; page 5, lines 1-3) to determine a condition of the technical installation (page 1, lines 12 - 14 and 34 - 36; page 5, lines 1 - 3, 21 - 22).

6. GROUNDS OF REJECTION TO BE REVIEWED UPON APPEAL - 37 CFR 41.37(c)(1)(vi)

The sole round of rejection to be reviewed is whether claims 12 - 22 are unpatentable under 35 U.S.C. Section 103 over Torch (U.S. 6,542,081).

7. ARGUMENT 37 CFR 41.37(c)(1)(vii)

APPELLANTS TRAVERSE ALL REJECTIONS BASED ON THE TORCH REFERENCE (U.S. 6,542,081).

Patentability of Each Claim is to be Separately Considered

Appellants urge that, to the extent the claims are separately argued, patentability of each claim should be separately considered. General argument, based on deficiencies in the rejection of the independent claims 8 and 16 demonstrates patentability of all dependent claims. However, none of the rejected claims stand or fall together because each dependent claim further defines a unique combination that patentably distinguishes over the art of record. For this reason, the Board is requested to consider all argument presented with regard to each dependent claim. To

the extent provided, argument demonstrating patentability of each dependent claim is presented under subheadings identifying each claim by number.

#### General Basis To Overturn All Rejections Under Section 103

In order to sustain the rejections under Section 103, MPEP §2143 provides that three criteria must be met to establish a prima facie case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one skilled in the art, to modify the reference or to combine teachings of the references. Second, there must be a reasonable expectation of success. Third, the prior art must teach or suggest **all** of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be both found in the prior art and not in the applicant's disclosure.

Therefore it is both fundamental and essential that all of the claimed features be found in the prior art combination in order to make a rejection. Yet this appeal is made because the prior art combination used to reject the claims fails to provide all of the features and functions recited in each claim.

#### 7A. APPELLANTS TRAVERSE THE REJECTION OF INDEPENDENT CLAIMS 12 and 18 BASED ON TORCH.

##### 7A(1). REJECTION OF INDEPENDENT CLAIM 12 UNDER SECTION 103 BASED ON TORCH IS IN ERROR.

Appellants submit that the art rejection does not and cannot identify every feature of independent claim 12 and the claims which depend therefrom. The following discussion illustrates how the rejection fails to identify key features recited in claim 12, this resulting in fatal deficiencies in the rejection of claim 12.

Claim 12 is directed to a method for monitoring a technical installation. Specifically, the first two steps of method claim 12 include

“using a sensor to acquire a physiological reaction of a human during an inspection tour of a portion of the technical installation”

and

“using an assessment tool to record [physiological] reaction information acquired with the sensor ...”

The rejection relies solely upon the Torch reference to reject the claim 12. Notwithstanding disagreement raised by the Examiner, the Torch reference does not at all concern monitoring of a technical installation based on a physiological reaction of a human being. Rather, the reference concerns a system for monitoring movement of the human eye to monitor fatigue and other states of a person, as explained at col. 1, lines 15 - 21. That system also provides for communication and/or controlling of devices based on movement of the eye or eyelid or other components of the eye. See again col. 1, lines 15 - 21.

At the outset it must be noted that the rejection takes words or phrases of the claims out of context to read them on the prior art. For example, it might be that movement of an eye lid could be considered to be a physiological reaction to fatigue, but claim 12 requires more: using a sensor to “acquire a physiological reaction of a human during an inspection tour of a portion of the technical installation ...” and then:

analyzing the [physiological reaction] information recorded with the assessment tool to diagnose an operational condition of a component of the technical installation.

Thus claim 12 concerns monitoring of a technical installation based on a physiological reaction of a human being. The rejection argues that the recitation of diagnosing an operational condition of a component of the technical installation is met by disclosure in Torch of detecting impending drowsiness of a person. See page 2 of the final office action. As already discussed, the claim requires more. Since a person or “user” is not a technical installation, this piecemeal approach to finding the invention of claim 12 in the Torch reference is in error.

The rejection also argues (page 3 of the final office action) that the recitation of using “an assessment tool to record [physiological] reaction information acquired with the sensor” is read upon the system of Torch because a memory circuit stores streams of data (col. 8, lines 52 - 63 of Torch). However, the stored data of Torch is not acquired during “an inspection tour of a portion of the technical installation” as expressly required by claim 12. Nor is the stored data of Torch the same as the recited “reaction information” required by claim 12. Rather, at best, the stored

data is merely data acquired in relation to eye movement or eye closure resulting from, for example, fatigue. This is not the same as data associated with a physiological reaction occurring during an inspection of a technical installation. Thus there are second reasons that application of the Torch reference to reject claim 12 is in error.

Also at page 3 of the final office action the rejection contends that the feature of analyzing the [physiological reaction] information recorded with the assessment tool to diagnose an operational condition of a component of the technical installation

is met by disclosure at col. 8, lines 53 - 63 of “retrieval and analysis” of streams of data which do not at all relate to diagnosing “an operational condition of a component of the technical installation ...” The Examiner has disagreed and states in the Advisory Action mailed 8 June 2010 that:

“the system [of Torch] monitor [sic] the equipment on the onset of drowsiness in the operator. The operational condition of the equipment is diagnosed via the operator. When the drowsiness is detected, the operational condition of the equipment is properly in used [sic] and thus the system controls the equipment.”

The above characterization of the Torch reference is without citation and appears to be ungrounded. As already noted, the system of Torch monitors eye and eye lid movement. There is no disclosure relating to diagnosing equipment on the onset of drowsiness and, even if there were, this is not consistent with what is claimed. Appellants claim the combination of

[acquiring] a physiological reaction of a human during an inspection tour of a portion of the technical installation,

and

analyzing the [physiological reaction] information recorded with the assessment tool to diagnose an operational condition of a **component** of the technical installation.

The Examiner’s combination does not have any connection between detection of drowsiness by Torch and “diagnosing an operational condition of a component of the technical installation.” For example, merely monitoring an operational parameter such as the speed of a vehicle is not the same as diagnosing the vehicle.

In further regard to the recitation

analyzing the information recorded with the assessment tool to diagnose an operational condition of a component of the technical installation.

the argument at page 3 is not understood. The Examiner contends that a processing box 130 monitors “the equipment of the onset of drowsiness” but as already explained claim 12 requires more: **diagnosing** “an operational condition of a component of the technical installation.” This is not the same as monitoring an operator for drowsiness or controlling equipment in response to a determination of operator fatigue. There is simply no use of the detection device 130 to “diagnose an operational condition of a component of the technical installation.” Removal of the rejection is therefore requested. For these reasons the rejection of claim each claim which depends from claim 12 should also be withdrawn.

7A(2). REJECTION OF INDEPENDENT CLAIM 18 UNDER SECTION 103 BASED ON  
TORCH IS ALSO IN ERROR.

For reasons similar to those presented for claim 12 (above), the rejection of claim 18 and each claim which depends therefrom should also be overturned. Appellants submit that the art rejection cannot identify every feature of independent claim 18. The following discussion illustrates how the rejection fails to identify all of the features recited in claim 18.

Claim 18 is directed to a method for performing a diagnosis of a technical installation. Claim 18 requires the combination of:

providing a sensor device,

acquiring a physiological reaction from a human with the device during an inspection tour by the human around a portion of the technical installation, and

using an assessment tool to record reaction information acquired with the sensor and analyzing information recorded with the assessment tool to determine a condition of a portion of the technical installation.



The rejection relies solely upon the Torch reference. Notwithstanding disagreement raised by the Examiner, the Torch reference does not at all concern determining a condition of a technical installation based on recorded physiological reaction information of a human. Rather, the reference concerns a system for monitoring movement of the human eye to monitor fatigue and other states of a person, as explained at col. 1, lines 15 - 21. That system also provides for communication and/or controlling of devices based on movement of the eye or eyelid or other components of the eye. See, again, col. 1, lines 15 - 21.

As discussed above with respect to claim 12, the rejection takes words or phrases of the claims out of context to read them on the Torch reference and also gives little weight to features of the claim which are not consistent with prior art present in the Torch reference. For example, it might be that movement of an eye lid could be considered to be a physiological reaction to fatigue, but claim 18 requires more:

“acquiring a physiological reaction from a human with the [sensor] device during an inspection tour by the human around a portion of the technical installation ...” and

analyzing [physiological reaction] information recorded with the assessment tool to determine a condition of a portion of the technical installation.

Thus claim 18 concerns monitoring of a technical installation based on a physiological reaction of a human. The Torch reference does not at all concern the reaction of a human as a means for monitoring a technical installation.

The rejection does not expressly address the features of claim 18 but, instead, states that claim 18 is interpreted and rejected “as stated above” apparently intending that the grounds which could have been expressly stated for rejecting claim 18 are identical to the grounds which have been stated to reject claim 12.

The recitation of determining an operational condition of a portion of the technical installation is apparently argued by the Examiner as met by disclosure in Torch of detecting impending drowsiness of a person. As already discussed, the claim requires more. Since a person or “user” is not a technical installation, this piecemeal approach to finding the invention of claim 18 in the Torch reference is in error.

The argument (page 3 of the final office action) that the recitation of using “an assessment tool to record [physiological] reaction information acquired with the sensor” cannot be read upon the system of Torch because the memory circuit of Torch does not store physiological reaction information as expressly required by claim 18. Rather, at best, the stored data is merely data acquired in relation to eye movement or eye closure resulting from, for example, fatigue. This is not the same as data associated with a physiological reaction occurring during an inspection of a technical installation. Thus there are second reasons that application of the Torch reference to reject claim 18 is in error.

Also at page 3 of the final office action the rejection would contend that the feature of analyzing [physiological reaction] information recorded with the assessment tool to determine a condition of a portion of the technical installation is met by disclosure at col. 8, lines 53 - 63 of “retrieval and analysis” of streams of data which do not at all relate to using recorded physiological reaction information to determine a condition of a portion of the technical installation. The Examiner has disagreed and states in the Advisory Action mailed 8 June 2010 that:

“the system [of Torch] monitor [sic] the equipment on the onset of drowsiness in the operator. The operational condition of the equipment is diagnosed via the operator. When the drowsiness is detected, the operational condition of the equipment is properly in used [sic] and thus the system controls the equipment.”

The above characterization of the Torch reference is without citation and appears to be ungrounded. As already noted, the system of Torch monitors eye and eye lid movement. There is no disclosure relating to diagnosing equipment on the onset of drowsiness and, even if there were, this is not consistent with what is claimed.

Nor does the Examiner’s use of Torch provide any relation or connection between detection of drowsiness by Torch and “determining a condition in the technical installation. For example, merely monitoring an operational parameter such as the speed of a vehicle is not performed by detecting drowsiness.

The rejection of claim 18 should be overturned.

7B. THE REJECTION UNDER SECTION 103 OF EACH DEPENDENT CLAIM, ALSO BASED ON TORCH, IS ALSO IN ERROR.

To the extent that any claim dependent claim is not separately argued herein the Board may consider that claim as rising or falling with the claim from which it depends.

7B(1) CLAIM 13 IS ALLOWABLE UNDER SECTION 103.

Claim 13 requires that the physiological reaction includes one of a neuritic current and changes in the neuritic current, and blood pressure and changes in blood pressure, pulse rate and changes in pulse rate, pulse strength and changes in pulse strength, galvanic skin reflex and changes in galvanic skin reflex, and breathing patterns. The rejection incorrectly reads the claim recitation and cites disclosure of merely displaying physiological data. Claim 13 requires that the data be used to “diagnose an operational condition of a component of the technical installation.” The rejection must be overturned.

7B(2) CLAIM 14 IS ALLOWABLE UNDER SECTION 103.

Claim 14 further distinguishes over Torch by requiring that a camera device is used in the step of using an assessment tool to record the human's sight including changes in said human's directions of sight. The rejection notes that Torch discloses a camera for monitoring eye movement but this is not the same as “record[ing] the human's sight.”

7B(3) CLAIM 16 IS ALLOWABLE UNDER SECTION 103.

According to claim 16, using the assessment tool includes storing the human's physiological reaction in a database, the database representing a history of the human's physiological reaction. The rejection acknowledges that Torch does not disclose a data base which represents a human's physiological reaction. The rejection then references the memory circuitry of Torch. However, it is not established that the memory circuitry of Torch contains

physiological reaction data either. See col. 8, lines 8 - 22. The rejection is deficient and must be overturned.

7B(4) CLAIM 19 IS ALLOWABLE UNDER SECTION 103.

Claim 19 requires the step of acquiring the human physiological reaction includes acquiring one or more of a neuritic current and changes in the neuritic current, blood pressure and changes in blood pressure, pulse rate and changes in pulse rate, pulse strength and changes in pulse strength, galvanic skin reflex and changes in galvanic skin reflex, and breathing patterns. The rejection incorrectly reads the claim recitation and cites disclosure of merely displaying physiological data. Claim 13 requires that the data be used to “diagnose an operational condition of a component of the technical installation.” The rejection must be overturned.

7B(5) CLAIM 20 IS ALLOWABLE UNDER SECTION 103.

Claim 20 recites that a camera device is used as the sensor device with the assessment tool to record the human's sight and changes of said human's directions of sight. The rejection notes that Torch discloses a camera for monitoring eye movement but this is not the same as “record[ing] the human's sight.”

7B(6) CLAIM 21 IS ALLOWABLE UNDER SECTION 103.

According to claim 21, using the assessment tool includes storing the human physiological reaction in a database representing a history of the human's physiological reaction. The rejection acknowledges that Torch does not disclose a data base which represents a human's physiological reaction. The rejection then references the memory circuitry of Torch. However, it is not established that the memory circuitry of Torch contains physiological reaction data either. See col. 8, lines 8 - 22. The rejection is deficient and must be overturned.

7B(7) CLAIM 21 IS ALLOWABLE UNDER SECTION 103.

According to claim 22, the acquired human physiological reaction is assigned one of a failure, process disturbance, and normal operation of a component of the technical installation. The rejection of claim 22 references the rejection of claim 17 which references the rejection of claim 12. There is no argument in the rejection of claim 12 which would support the rejection of claim 17 or claim 22. That is, there is no reference to a failure, process disturbance, and normal operation of a component of the technical installation. The rejection is without basis and must be overturned.

7C. CONCLUSIONS


Argument has been presented to demonstrate that the rejections under Section 103 are deficient and that numerous ones of the dependent claims further distinguish over the prior art. The Examiner has argued rejections when claimed features are not obtainable from the prior art. For the reasons presented, there cannot be a prima facie case of obviousness and none of the rejections can be sustained. All of the rejections should be overturned and all of the claims should be allowed.

8. APPENDICES

An appendix containing a copy of the claims involved in this appeal is provided herewith. No evidence appendix or related proceedings appendix is provided because no such evidence or related proceeding is applicable to this appeal.

Respectfully submitted,

Dated: 09/01/10

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9. APPENDIX OF CLAIMS ON APPEAL

12. A method for monitoring a technical installation, comprising:  
using a sensor to acquire a physiological reaction of a human during an inspection tour of a portion of the technical installation,  
using an assessment tool to record reaction information acquired with the sensor; and  
analyzing the information recorded with the assessment tool to diagnose an operational condition of a component of the technical installation.
13. The method according to Claim 12, wherein the said physiological reaction includes one of a neuritic current and changes in the neuritic current, and blood pressure and changes in blood pressure, pulse rate and changes in pulse rate, pulse strength and changes in pulse strength, galvanic skin reflex and changes in galvanic skin reflex, and breathing patterns.
14. The method according to Claim 12, wherein a camera device is used in the step of using an assessment tool to record the human's sight including changes in said human's directions of sight.
15. The method according to Claim 12, wherein the human is equipped with the sensor device to acquire the human's physiological reaction.
16. The method according to Claim 12, wherein using the assessment tool includes storing the human's physiological reaction in a database, the database representing a history of the human's physiological reaction.
17. The method according to Claim 12, further comprising an assignment of the acquired human physiological reaction at a failure, a process disturbance, and normal operation of the component in the technical installation.

18. A method for performing a diagnosis of a technical installation, comprising:  
providing a sensor device; and  
acquiring a physiological reaction from a human with the device during an inspection tour by the human around a portion of the technical installation, using an assessment tool to record reaction information acquired with the sensor and analyzing information recorded with the assessment tool to determine a condition of a portion of the technical installation.
19. The method according to Claim 18, wherein the step of acquiring the human physiological reaction includes acquiring one or more of a neuritic current and changes in the neuritic current, blood pressure and changes in blood pressure, pulse rate and changes in pulse rate, pulse strength and changes in pulse strength, galvanic skin reflex and changes in galvanic skin reflex, and breathing patterns.
20. The method according to Claim 18, wherein a camera device is used as the sensor device with the assessment tool to record the human's sight and changes of said human's directions of sight.
21. The method according to Claim 18, wherein using the assessment tool includes storing the human physiological reaction in a database representing a history of the human's physiological reaction.
22. The method according to Claim 18, wherein the acquired human physiological reaction is assigned one of a failure, process disturbance, and normal operation of a component of the technical installation.

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10. EVIDENCE APPENDIX - 37 CFR 41.37(c) (1) (ix)

None



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11. RELATED PROCEEDINGS APPENDIX - 37 CFR 41.37(c) (1) (x)

None